ABSTRACT

A method and apparatus are described that may be used to provide decoupled rotation of structures about different pivot points. The apparatus may include one or more fixed blades mounted to a frame or substrate, one or more movable blades mounted to each structure to be moved, and flexures on which the structures are suspended. Separate movable blades may be provided for each degree of freedom. When voltage is applied between the fixed and movable blades, the electrostatic attraction generates a force attracting movable blades toward blades that are fixed relative to the moveable blades, causing a structure to rotate about the flexures. The angle of rotation that results may be related to the size, number and spacing of the blades, the stiffness of the flexures and the magnitude of the voltage difference applied to the blades. The blades are fabricated using deep silicon etching.